

REMARKS

The present Amendment is in response to the Office Action mailed March 31, 2003 in the above-identified application.

In the Office Action, the Examiner rejected claims 52-55, 58, 62-66, 72 and 74 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,296,737 to Nishimura. Referring to FIG. 12 thereof, Nishimura discloses two semiconductor chips 1a and 1b bonded together and electrically attached to the respective ends of inner leads 3a and 3b. The inner leads 3a and 3b are respectively bent upwardly and downwardly by a distance generally equal to the thickness of one of the semiconductor chips 1a and 1b. The inner leads 3a and 3b are then bonded to outer leads 4. The package is then encapsulated using a resin 5.

In contrast, referring to FIGS. 10A-10F, the present application discloses a connection component 914 with flexible conductive leads 926 having terminal ends 924 permanently attached to the connection component and tip ends 928 releasably attached to the connection component. A first surface 922 of the connection component 914 also includes one or more connection component contacts 970. A first microelectronic element 912 is abutted against the connection component 914 so that the contacts 918 of the microelectronic element 912 engage the tip ends 928 of leads 926. The tip ends 928 may be secured to the contacts 918 using various bonding techniques. Referring to FIG. 10c, a second microelectronic element 972 having a contact bearing face 974, contacts 976 and a rear surface 978 is assembled with the first microelectronic element 912 by juxtaposing the rear surface 978 of the second element 972 with the back surface 934 of the first microelectronic element 912. Referring to FIG. 10d, conductive wires 932 electrically interconnect chip contacts 976 of the second microelectronic element 972 with the connection component contacts 970. Each conductive wire 932 has a first end 960 bonded to one of the chip contacts 976 of the second microelectronic element 972 and

a second end 962 bonded to a contacts 970 of the connection component 914. Referring to FIG. 10e, the first and second microelectronic elements 972, 912 are moved away from dielectric sheet 914 in a controlled manner. As the microelectronic elements 912, 972 and dielectric sheet 914 move away from one another, the tip ends 928 of flexible leads 926 are released from the top surface 922 of dielectric sheet 914 and bent into a substantially s-shaped configuration enabling the leads to flex and bend during operation of the assembly. As the microelectronic elements move away from connection component 914, the conductive wires 932 also flex and bend to account for the increased distance between the contacts 976 of second microelectronic element 972 and the connection component contacts 970.

Independent claim 52 is unanticipated by Nishimura because the cited reference neither discloses nor suggests the method of making a microelectronic assembly including the step of "providing a connection component having a first surface including conductive leads and contacts, said conductive leads having terminal ends permanently secured to said connection component and tip ends releasably secured to said connection component." Claim 52 is also unanticipated by Nishimura because the cited reference neither discloses nor suggests a step of "after the wire bonding step, moving said first and second microelectronic elements through a preselected displacement relative to said connection component so as to deform the bonding wires and the leads." Clearly, Nishimura teaches deforming the inner leads 3a and 3b before the electrical interconnections are made and not after as is specifically required by claim 52. For all of these reasons, claim 52 is unobvious over Nishimura and is otherwise allowable.

Claim 53 is unanticipated by Nishimura because the cited reference neither discloses nor suggests the step of "releasing the tip ends of said leads from the top surface of

said connection component." Clearly, Nishimura does not teach leads having "tips ends releasably secured" to a connection component. Claim 53 is also unanticipated, *inter alia*, by virtue of its dependence from claim 52, which is unanticipated for the reasons set forth above. Claims 54-55, 58 and 62-64 are also unanticipated, *inter alia*, by virtue of their dependence from claim 52, which is unanticipated for the reasons set forth above.

Claim 65 is unanticipated by Nishimura because the cited reference neither discloses nor suggests a method wherein "said first microelectronic element or said second microelectronic element includes a semiconductor wafer. Claim 65 is also unanticipated, *inter alia*, by virtue of its dependence from claim 52, which is unanticipated for the reasons set forth above. Claims 66, 72 and 74 are also unanticipated, *inter alia*, by virtue of their dependence from claim 52, which is unanticipated for the reasons set forth above.

The Examiner also rejected claim 67 under 35 U.S.C. § 103(a) as being unpatentable over Nishimura in view of IBM Technical Disclosure Bulletin No. 24, Issue No. 12, page 6371. The Examiner asserts that Nishimura fails to teach providing an adhesive between first and second microelectronic elements, but that the IBM Technical Disclosure Bulletin No. 24 provides such teaching. In response, Applicants respectfully assert that the IBM Technical Disclosure Bulletin does not overcome the deficiencies noted above in Nishimura. As such, claim 67 is unobvious over the combination of Nishimura and the IBM Technical Disclosure Bulletin. Claim 67 is also unobvious, *inter alia*, by virtue of its dependence from claim 52, which is patentable for the reasons set forth above.

The Examiner also rejected claim 68 under 35 U.S.C. § 103(a) as being unpatentable over Nishimura in view of IBM Technical Disclosure Bulletin No. 24, and further in view of U.S. Patent 5,620,928 to Lee. The Examiner asserts that Nishimura and the IBM Technical Disclosure Bulletin No. 24 fail to teach a

thermally conductive adhesive, but that such teaching is provided by the Lee '928 patent. In response, Applicants respectfully assert that Lee does not overcome the deficiencies noted above in Nishimura. As such, claim 68 is unobvious over the combination of Nishimura and the IBM Technical Disclosure Bulletin and Lee. Claim 68 is also unobvious, *inter alia*, by virtue of its dependence from claim 52, which is patentable for the reasons set forth above.

The Examiner rejected claims 61 and 69-70 under 35 U.S.C. § 103(a) as being unpatentable over Nishimura in view of U.S. Patent 5,659,952 to Kovac. The Examiner has cited Kovac as teaching a connection component made of a flexible dielectric sheet having a first surface and a second surface remote therefrom. In response, Applicants respectfully assert that Kovac does not overcome the deficiencies noted above in Nishimura. As such, claims 61 and 69-70 are unobvious over the combination of references cited by the Examiner and otherwise allowable. Claims 61 and 69-70 are also unobvious, *inter alia*, by virtue of its dependence from claim 52, which is patentable for the reasons set forth above.

Applicants acknowledge and appreciate the Examiner's indication that claims 56-57, 59-60, 71 and 73 contain allowable matter and would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response to the Examiner's indication that allowable matter is present in claims 56-57, 59-60, 71 and 73, Applicants have added by the present Amendment new claim 75 that incorporates the limitations of independent claim 52 and dependent claims 55 and 56. Applicants have also added a second, new independent claim 76 that incorporates the limitations of claims 52 and 73.

As it is believed that all of the rejections set forth in the Office Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

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If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he/she telephone Applicants' attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: June 20, 2003

Respectfully submitted,

By 

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